

# Ageing profiling of craft beers: a sensorial and chemical overview.

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## Aims

Craft beer has active yeast in the bottle whereas in commercial beer yeast is inactivated for product stability. This study investigated the changes occurring during the storage/ageing of six different beers: four craft (Weiss, Pilsner, Stout and Amber) and two commercial (Weiss and Pilsner). Beers were analyzed sensory and chemically over six months. Both craft and commercial beers showed modifications in their composition during the storage time, being the behavior similar for both. Ageing profiles were similar and craft beer showed the desired stability after storage time.

## Introduction



Combination between different:

- ingredients
- processes
- packages
- marketing
- culture

Different types of beer

Different final flavor [1]

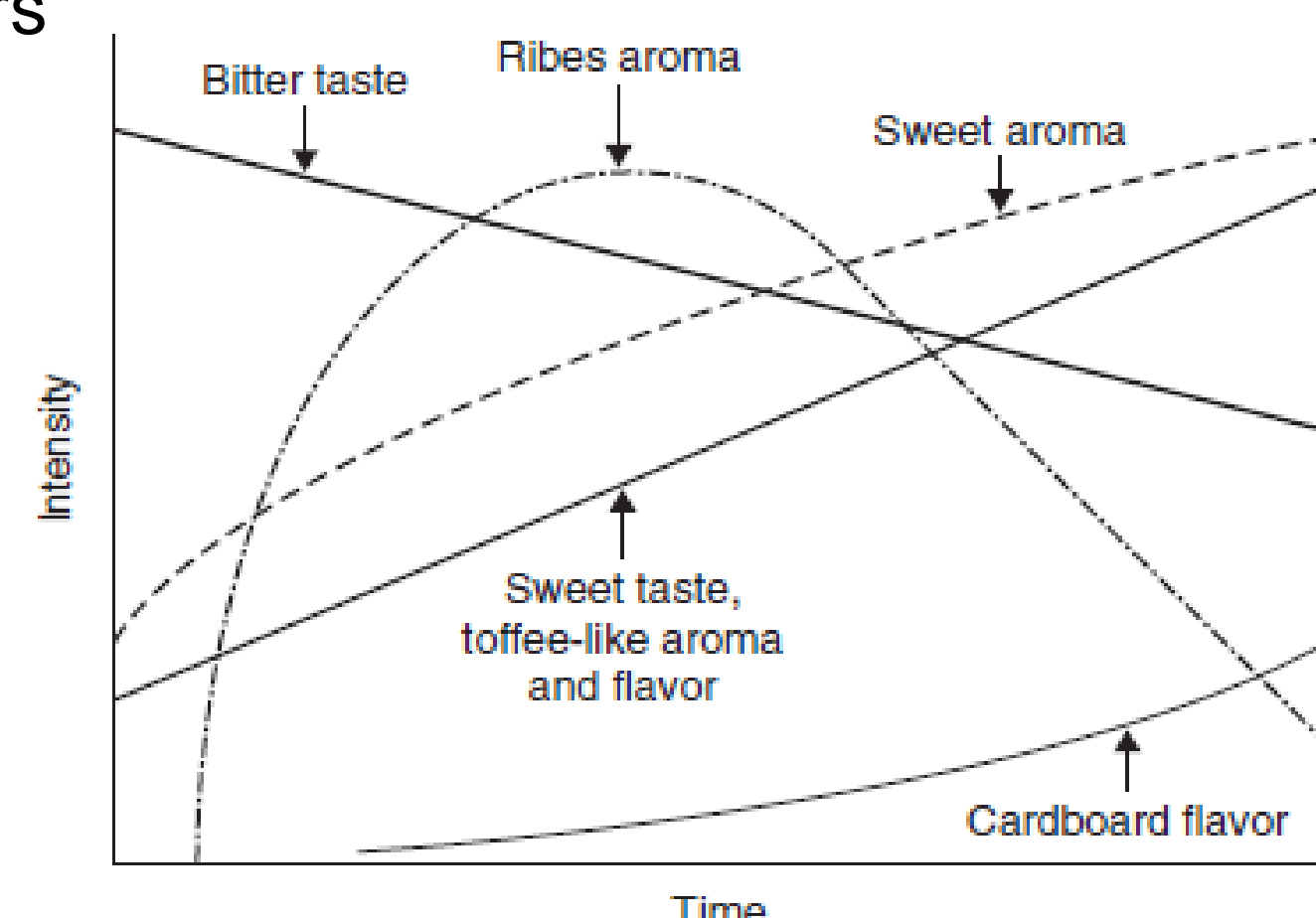
Consumer satisfaction:

- appearance
- alcoholic content
- nutritive value
- taste and aroma
- other parameters



Continuous changing state

When does the maturation ends and deterioration begins?



Different for each type of beer and for each consumer [2].

## Methodology

Six different beers:

Craft Beer			
Nomenclature	Recipe	Bottle	Caps.
W33	<u>Weiss</u>	33 cl	metal
W75		75 cl	cork
P33	<u>Pilsner</u>	33 cl	metal
P75		75 cl	cork
S33	<u>Stout</u>	33 cl	metal
S75		75 cl	cork
A33	<u>Amber</u>	33 cl	metal
A75		75 cl	cork
Commercial Beer			
Commercial Weiss	<u>Weiss</u>	50 cl	metal
Commercial Pilsner	<u>Pilsner</u>	25 cl	metal

### Sensory Analysis

- panel of 10 members
- one session per month
- Aspect, aroma, taste and mouthfeel were evaluated

### Chemical Analysis

GC-MS  
↓  
Minor volatile compounds

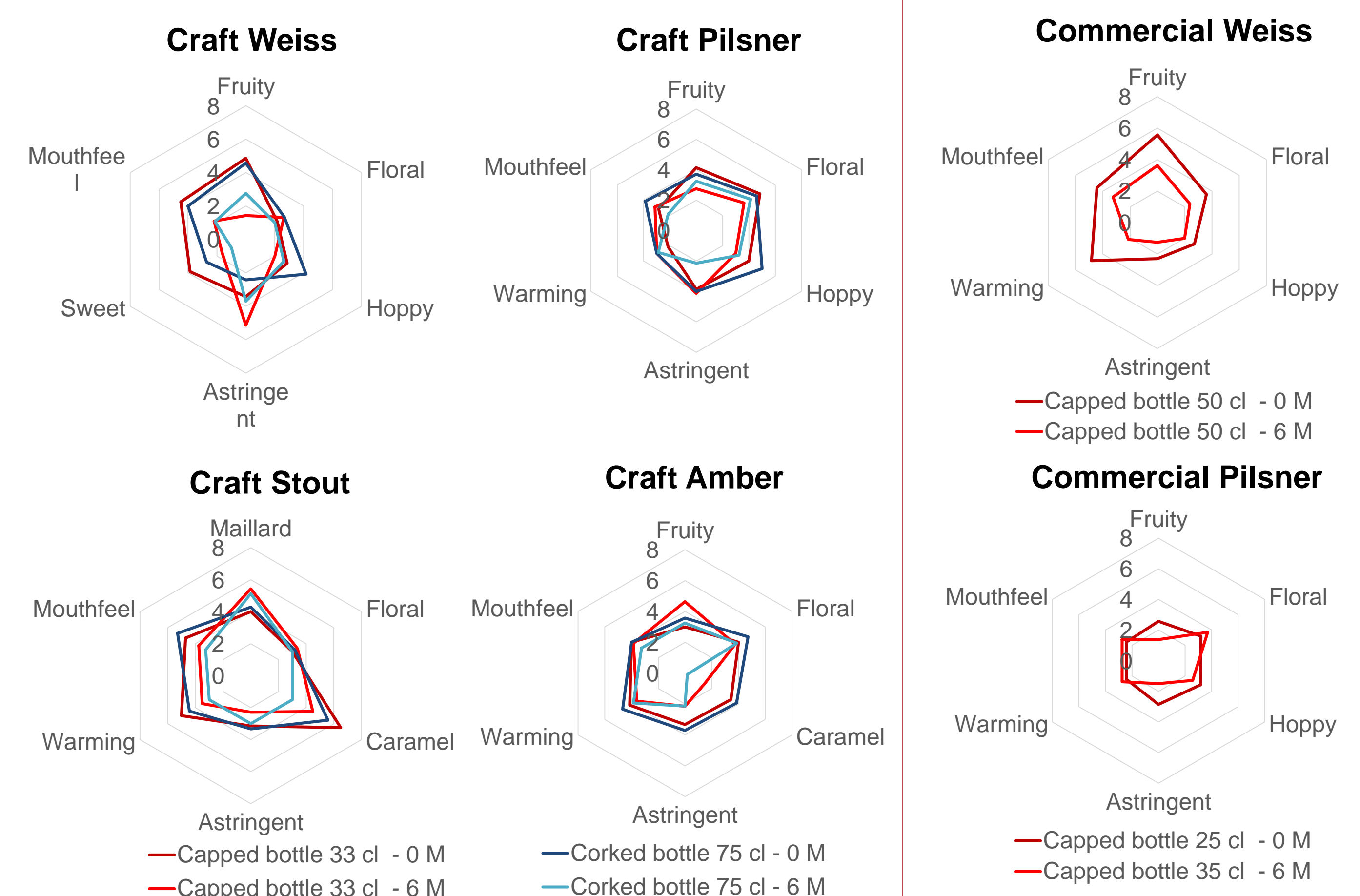
## Conclusions

The aromatic profiles and the results of minor compounds analysis were in line with the characteristics of each type of beer portrayed in the literature.

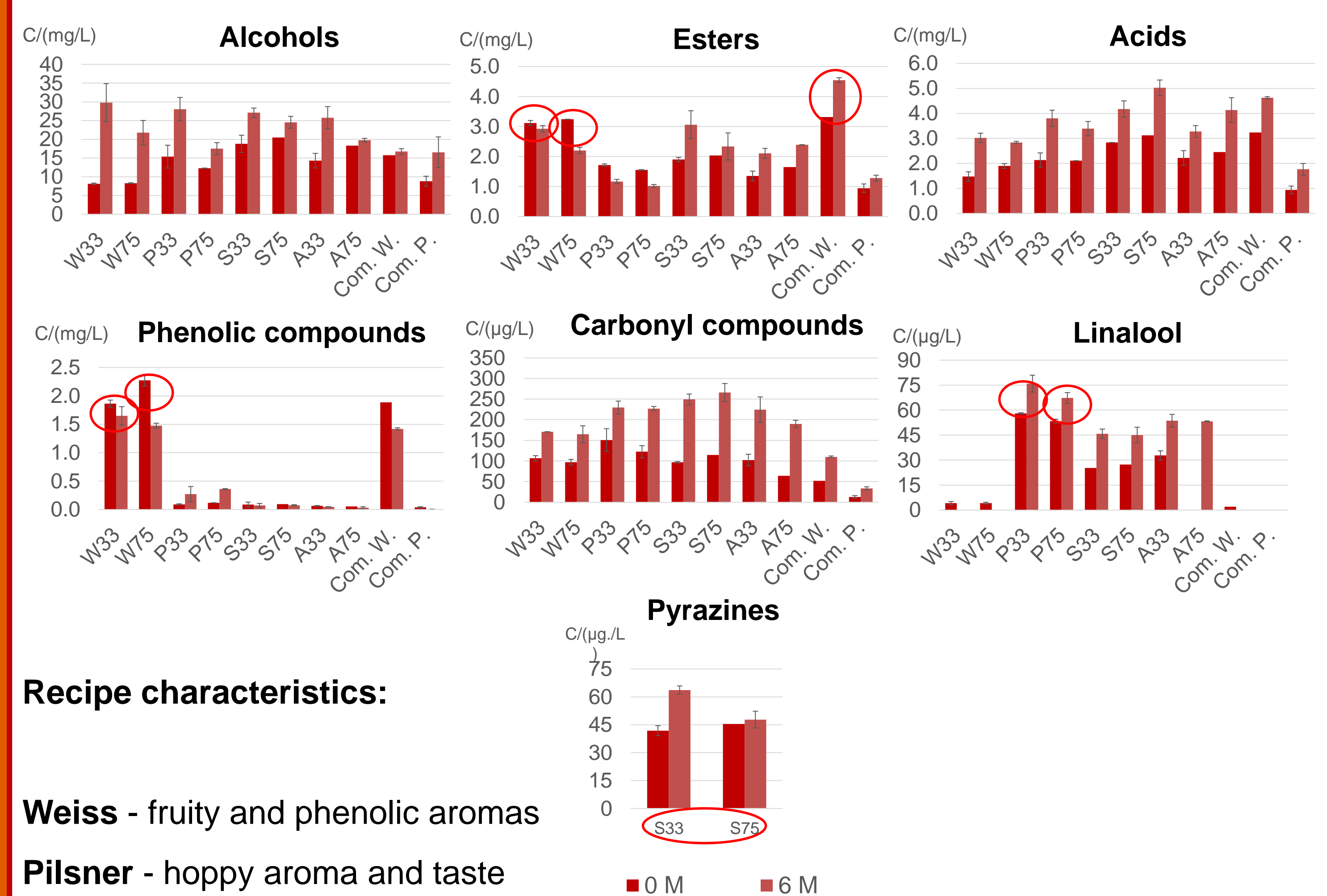
The results allowed to conclude that craft beers preserved their quality over six months, with the benefit of having more intense flavors and aromas than commercial beers.

This study allows the possibility of increasing the shelf life of craft beers that corresponds to one of the biggest problems of this type of beer production.

## Results



The results of sensory analysis were in line with the characteristics of each type of beer. Craft beers showed an aromatic profile much more intense than the commercial beers and had a similar behavior over the six months (as the commercial beers).



### Recipe characteristics:

**Weiss** - fruity and phenolic aromas

**Pilsner** - hoppy aroma and taste

**Stout** - caramelized/toasted intense aroma

**Amber** - bitterness and aroma from the hops and sweetness and caramel of medium intensity. [3]

The results for minor volatile compounds analysis were in line with the aromatic profiles obtained by sensory analysis, as well as the characteristics of each type of beer.

The craft beers kept their volatile compounds associated with its characteristic aromas/tastes over a six month period.

## References

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- [3] Papazian, C. (2006). Chapter 2: Beer Styles: Their Origins and Classification. Handbook of Brewing, Second Edition. F. G. Priest and G. G. Stewart, Taylor & Francis.

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